

### **REMARKS**

Claims 1, 10, 40 and 41 have been amended, and claim 39 has been cancelled without prejudice or disclaimer. Claims 1, 10, 15-23, 32, 34, 35, 38, 40 and 41 are pending. Claims 15-23, 32, 34 and 35 have been withdrawn from consideration. Claims 1, 10, 40 and 41 are the independent claims. No new matter is presented in this Amendment. Proper support for the amendment of claims 1, 10, 40 and 41 can be found in the specification at least at paragraphs [0033], [0050], [0051], [0053] and [0060].

### **DOUBLE PATENTING**

Applicant is advised that should claim 38 be found allowable, claim 39 will be objected to, under 37 CFR 1.75 as being a substantial duplicate thereof.

Applicants note that claim 39 has been cancelled without prejudice or disclaimer of the subject matter recited therein, correcting the minor informality of duplicate claims.

Claims 1, 2, 5, 10, 11 and 13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 11 and 15 U.S. Patent No. 6,797,435 in view of Amatucci et al. (U.S. Patent No. 5,705,291).

Applicants respectfully traverse this rejection for at least the following reason.

Claims 2, 5, 11 and 13 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claims 2, 5, 11 and 13 is moot.

Regarding the rejection of claims 1 and 10, it is noted that U.S. Patent No. 6,797,435 relates to a positive active material with a surface-treatment layer comprising at least one coating element-included compound, while an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Accordingly, Applicants respectfully request that the rejection of claims 1 and 10 under the judicially created doctrine of obviousness-type double patenting be withdrawn.

Furthermore, since claims 1 and 10 of the instant application have not yet been indicated as allowable, it is believed that any submission of a Terminal Disclaimer would be premature. MPEP 804(I)(B).

As such, it is respectfully requested that the applicant be allowed to address any provisional obviousness-type double patenting issues remaining once the rejections of the claim under 35 U.S.C. § 103 are resolved.

Claims 1, 2, 5, 10, 11 and 13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 and 12-17 of U.S. Patent No. 6,753,111.

Applicants respectfully traverse this rejection for at least the following reason.

Claims 2, 5, 11 and 13 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claims 2, 5, 11 and 13 is moot.

Regarding the rejection of independent claims 1 and 10, it is noted that U.S. Patent No. 6,753,111 relates to a positive active material with a surface-treatment layer that further comprises a coating-element included oxide or hydroxide, while an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Furthermore, since claims 1 and 10 of the instant application have not yet been indicated as allowable, it is believed that any submission of a Terminal Disclaimer would be premature. MPEP 804(I)(B).

As such, it is respectfully requested that the applicant be allowed to address any provisional obviousness-type double patenting issues remaining once the rejections of the claims under 35 U.S.C. § 103 are resolved.

Claims 1, 2, 5, 10, 11 and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15, 28-30, 32-35 of copending Application No. 10/189,384 (U.S. Patent Application Publication 2003/0054250).

Applicants respectfully traverse this rejection for at least the following reason.

Claims 2, 5, 11 and 13 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claims 2, 5, 11 and 13 is moot.

Regarding the rejection of independent claims 1 and 10, it is noted that U.S. Patent Application No. 10/189,384 relates to a positive electrode comprising a surface-treatment layer comprising a conductive agent and at least one coating-element-containing hydroxide, while an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Furthermore, since claims 1 and 10 of the instant application have not yet been indicated as allowable, it is believed that any submission of a Terminal Disclaimer would be premature. MPEP 804(I)(B).

As such, it is respectfully requested that the applicant be allowed to address any provisional obviousness-type double patenting issues remaining once the rejections of the claims under 35 U.S.C. § 103 are resolved.

Claims 1, 2, 5, 10, 11 and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 and 23-28 of copending Application No. 10/072,923 (U.S. Patent Application Publication 2003/0003352) in view of Amatucci et al. (U.S. Patent No. 5,705,291).

Applicants respectfully traverse this rejection for at least the following reason.

Claims 2, 5, 11 and 13 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claims 2, 5, 11 and 13 is moot.

U.S. Patent Application No. 10/072,923 relates to a positive electrode comprising a surface-treatment layer formed on a positive active material layer, while an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Furthermore, since claims 1 and 10 of the instant application have not yet been indicated as allowable, it is believed that any submission of a Terminal Disclaimer would be premature. MPEP 804(I)(B).

As such, it is respectfully requested that the applicant be allowed to address any provisional obviousness-type double patenting issues remaining once the rejections of the claims under 35 U.S.C. § 103 are resolved.

Claims 1, 2, 5, 10, 11 and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 and 25-37 of copending Application No. 09/897,445 (U.S. Patent Application Publication 2002/0,071,990).

Applicants respectfully traverse this rejection for at least the following reason.

Claims 2, 5, 11 and 13 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claims 2, 5, 11 and 13 is moot.

Regarding the rejection of independent claims 1 and 10, it is noted that U.S. Patent Application No. 09/897,445 relates to a positive active material with a surface-treatment layer, while an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Furthermore, since claims 1 and 10 of the instant application have not yet been indicated as allowable, it is believed that any submission of a Terminal Disclaimer would be premature. MPEP 804(I)(B).

As such, it is respectfully requested that the applicant be allowed to address any provisional obviousness-type double patenting issues remaining once the rejections of the claims under 35 U.S.C. § 103 are resolved.

Claims 1, 2, 5, 10, 11 and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 and 25-37 of copending Application No. 10/627,725 (U.S. Patent Application Publication 2004/0018429).

Applicants respectfully traverse this rejection for at least the following reason.

Claims 2, 5, 11 and 13 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claims 2, 5, 11 and 13 is moot.

Regarding the rejection of independent claims 1 and 10, it is noted that U.S. Patent

Application No. 10/627,725 relates to a positive active material with a surface-treatment layer, while an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Furthermore, since claims 1 and 10 of the instant application have not yet been indicated as allowable, it is believed that any submission of a Terminal Disclaimer would be premature. MPEP 804(I)(B).

As such, it is respectfully requested that the applicant be allowed to address any provisional obviousness-type double patenting issues remaining once the rejections of the claims under 35 U.S.C. § 103 are resolved.

**REJECTIONS UNDER 35 U.S.C. §103:**

Claims 1, 10 and 38-41 are rejected under 35 U.S.C. §103(a) as being unpatentable over Amatucci et al. (U.S. Patent 5,705,291) in view of the Japanese publication JP 09-171813 (hereinafter referred to as "*the JP'813 publication*").

Applicants respectfully traverse this rejection for at least the following reasons.

Regarding the rejection of claim 39, it is noted that claim 39 has been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claim 39 is moot.

Regarding the rejection of independent claim 1, it is noted that claim 1, as amended, recites a positive active material composition comprising, amongst other novel features, a positive active material comprising at least one lithiated compound; at least one amorphous additive compound, wherein said at least one amorphous additive compound comprises an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition.

Applicants respectfully assert that the combination of Amatucci and the JP '813 publication fails to disclose each of these features.

Amatucci discloses a lithium intercalation cell in which the surfaces of aggregate lithiated intercalation composition particulates, comprising the positive cell electrode have been passivated by coating or encapsulation in a layer of a composition comprising a borate, lithiated

borate, aluminate, lithiated aluminate, silicate, or lithiated silicate. The surfaces of these particulates are coated with a layer of a composition comprising boron oxide, boric acid, lithium hydroxide, aluminum oxide, lithium aluminate, lithium metaborate, silicon dioxide, lithium silicate, or mixtures thereof (column 2, lines 5-24).

Amatucci also discloses various weight percentages of the borate powder used to surface treat portions of  $\text{LiMn}_2\text{O}_4$  powder and indicates that these weight percentages include 0.4%, 0.6%, 0.8% and 1.0% (Example 3, column 5, lines 25-31).

Accordingly, although Amatucci discloses an additive compound and various weight percentages in which the additive is used, Amatucci fails to teach or suggest that the additive compound is an amorphous additive compound comprising an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition, as recited in independent claim 1.

The JP '813 publication discloses a nonaqueous electrolyte secondary battery having its positive electrode active material or negative electrode active material covered with an inorganic ion conductive membrane. The JP '813 publication further discloses that the positive electrode is prepared by mixing cobalt carbonate with lithium carbonates and  $\text{LiCoO}_2$ . The JP '813 publication also fail to disclose or suggest an amorphous additive compound comprising an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition, as recited in amended independent claim 1.

Therefore, the JP '813 application fails to cure the deficiencies of Amatucci.

Accordingly, Applicants respectfully assert that the rejection of claim 1 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the JP '813 publication, whether taken singly or combined teach or suggest each feature of independent claim 1.

Furthermore, Applicants respectfully assert that dependent claim 38 is allowable at least because of its dependence from claim 1, and because it includes additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claim 38 also distinguishes over the prior art.

Regarding the rejection of independent claim 10, it is noted that claim 10 recites a positive active material composition for a rechargeable lithium battery comprising, amongst other

novel features, at least one additive compound wherein said at least one additive compound comprises an amount at or between 0.1 weight % and 0.3 weight % based on the weight of the positive active material composition.

As noted above, Amatucci discloses various weight percentages of the borate powder used to surface treat portions of  $\text{LiMn}_2\text{O}_4$  powder and indicates that these weight percentages include 0.4%, 0.6%, 0.8% and 1.0% (column 5, lines 25-31).

Accordingly, although Amatucci discloses an additive compound, Amatucci fails to teach or suggest that the additive compound is an additive compound comprising an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition, as recited in independent claim 10.

As also noted above, the JP '813 publication discloses an electrolyte battery having a positive electrode including a positive active material, and an aluminum hydroxide. However, the JP '813 publication also fails to teach or suggest the weight percentages of the additive compound.

Accordingly, the JP '813 fails to cure the deficiencies of Amatucci.

Therefore, Applicants respectfully assert that the rejection of claim 10 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the JP '813 publication, whether taken singly or combined, teach or suggest each feature of independent claim 10.

Regarding the rejection of independent claim 40, it is noted that claim 40 recites a positive active material composition for a rechargeable lithium battery comprising, amongst other novel features, a positive active material comprising at least one lithiated compound, and an additive compound selected from the group consisting of a thermal-absorbent element-included hydroxide, wherein the thermal-absorbent element included hydroxide is an amorphous Al-included hydroxide, and wherein said thermal-absorbent element-included hydroxide comprises an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition.

As noted above, Amatucci discloses various weight percentages of the borate powder used to surface treat portions of  $\text{LiMn}_2\text{O}_4$  powder and indicates that these weight percentages include 0.4%, 0.6%, 0.8% and 1.0% (column 5, lines 25-31).

Accordingly, although Amatucci discloses an additive compound, Amatucci fails to teach or suggest that the additive compound is an additive compound comprising an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition, as recited in independent claim 40.

As also noted above, the JP '813 publication discloses an electrolyte battery having a positive electrode including a positive active material, and an aluminum hydroxide. However, the JP '813 publication also fails to teach or suggest the range of the weight percentage of the additive compound.

Accordingly, the JP '813 fails to cure the deficiencies of Amatucci.

Therefore, Applicants respectfully assert that the rejection of claim 40 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the JP '813 publication, whether taken singly or combined, teach or suggest each feature of independent claim 40.

Regarding the rejection of independent claim 41, it is noted that claim 41 recites, a positive active material composition for a rechargeable lithium battery comprising, amongst other novel features, a positive active material comprising at least one lithiated compound; and an additive compound selected from the group consisting of a thermal-absorbent element-included hydroxide, wherein the thermal-absorbent element included hydroxide is a crystalline B-included hydroxide, and wherein said thermal-absorbent element-included hydroxide comprises an amount at or between 0.1 weight % and 0.3 weight % based on the weight of the positive active material composition.

As noted above, Amatucci discloses various weight percentages of the borate powder used to surface treat portions of  $\text{LiMn}_2\text{O}_4$  powder and indicates that these weight percentages include 0.4%, 0.6%, 0.8% and 1.0% (column 5, lines 25-31).

Accordingly, although Amatucci discloses an additive compound, Amatucci fails to teach or suggest that the additive compound is an additive compound comprising an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition, as recited in independent claim 41.

As also noted above, the JP '813 publication discloses an electrolyte battery having a positive electrode including a positive active material, and an aluminum hydroxide. However, the



JP '813 publication also fails to teach or suggest the range of the weight percentage of the additive compound.

Accordingly, the JP '813 fails to cure the deficiencies of Amatucci.

Therefore, Applicants respectfully assert that the rejection of claim 41 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the JP '813 publication, whether taken singly or combined, teach or suggest each feature of independent claim 41.

Claims 1, 10 and 38-40 are rejected under 35 U.S.C. §103(a) as being unpatentable over Amatucci et al. (U.S. Patent 5,705,291) in view of Yano et al. (U.S. Patent 5,827,494).

Regarding the rejection of claim 39, it is noted that claim 39 has been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claim 39 is moot.

Regarding the rejection of independent claim 1, it is noted that claim 1, as amended, recites a positive active material composition comprising, amongst other novel features, a positive active material comprising at least one lithiated compound; at least one amorphous additive compound, wherein said at least one amorphous additive compound comprises an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition.

As noted above, Amatucci discloses various weight percentages of the borate powder used to surface treat portions of  $\text{LiMn}_2\text{O}_4$  powder and indicates that these weight percentages include 0.4%, 0.6%, 0.8% and 1.0% (column 5, lines 25-31).

Accordingly, although Amatucci discloses an additive compound, Amatucci fails to teach or suggest that the additive compound is an additive compound comprising an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition, as recited in independent claim 1.

Yano discloses an active material powder for nickel electrodes of alkaline batteries with which the diffusion of cobalt hydroxide covering the surface of nickel hydroxide particles into the particles is suppressed (column 2, lines 11-18). Yano further teaches that the active powder is prepared by immersing nickel hydroxide particles or solid solution particles consisting of nickel

hydroxide in a solution of a cobalt salt and a salt of at least one metal, adding an alkali to the solution to co-precipitate cobalt hydroxide and a hydroxide of the metal, thereby covering the surface of the nickel hydroxide particles or solid solution particles (column 2, lines 58-67 and column 3, lines 1-5). Accordingly, although Yano discloses an active material powder for a battery, the active material powder is for electrodes of alkaline batteries and not for rechargeable lithium batteries as recited in independent claim 1. Furthermore, the active material powder composition disclosed by Yano differs from the composition recited in independent claim 1 in that Yano fails to teach or suggest the weight percentages recited in independent claim 1.

Accordingly, Yano fails to cure the deficiencies of Amatucci.

Therefore, Applicants respectfully assert that the rejection of claim 1 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the Yano, whether taken singly or combined, teach or suggest each feature of independent claim 1.

Regarding the rejection of independent claim 10, it is noted that claim 10 recites a positive active material composition for a rechargeable lithium battery comprising, amongst other novel features, at least one additive compound wherein said at least one additive compound comprises an amount at or between 0.1 weight % and 0.3 weight % based on the weight of the positive active material composition.

As noted above, although Amatucci discloses an additive compound and using such compound according to various weight percentages, Amatucci fails to teach or suggest that the additive compound is an additive compound comprising an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition, as recited in independent claim 1.

Yano also fails to teach or suggest the weight ratios recited in independent claim 10, and in particular, the weight ratio of the positive active material to the at least one additive compound to the binder to the conductor.

Accordingly, Yano fails to cure the deficiencies of Amatucci.

Therefore, Applicants respectfully assert that the rejection of claim 10 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the Yano, whether taken singly or combined, teach or suggest each feature of independent claim 10.

Regarding the rejection of independent claim 40, it is noted that claim 40 recites a positive active material composition for a rechargeable lithium battery comprising, amongst other novel features, a positive active material comprising at least one lithiated compound, and an additive compound selected from the group consisting of a thermal-absorbent element-included hydroxide, wherein the thermal-absorbent element included hydroxide is an amorphous Al-included hydroxide, and wherein said thermal-absorbent element-included hydroxide comprises an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition.

As noted above, although Amatucci discloses an additive compound, Amatucci fails to teach or suggest that the additive compound is an additive compound comprising an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition, as recited in independent claim 40.

Yano also fails to teach or suggest the weight ratios recited in independent claim 10, and in particular, the weight ratio of the positive active material to the at least one additive compound to the binder to the conductor.

Accordingly, Yano fails to cure the deficiencies of Amatucci.

Therefore, Applicants respectfully assert that the rejection of claim 40 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the Yano, whether taken singly or combined, teach or suggest each feature of independent claim 40.

Regarding the rejection of independent claim 41, it is noted that claim 41 recites, a positive active material composition for a rechargeable lithium battery comprising, amongst other novel features, a positive active material comprising at least one lithiated compound; and an additive compound selected from the group consisting of a thermal-absorbent element-included hydroxide, wherein the thermal-absorbent element included hydroxide is a crystalline B-included hydroxide, and wherein said thermal-absorbent element-included hydroxide comprises an amount at or between 0.1 weight % and 0.3 weight % based on the weight of the positive active material composition.

As noted above, although Amatucci discloses an additive compound, Amatucci fails to

teach or suggest that the additive compound is an additive compound comprising an amount at or between **0.1 weight % and 0.3 weight %** based on the weight of the positive active material composition, as recited in independent claim 41.

Yano also fails to teach or suggest the weight ratios recited in independent claim 41, and in particular, the weight ratio of the positive active material to the at least one additive compound to the binder to the conductor.

Accordingly, Yano fails to cure the deficiencies of Amatucci.

Therefore, Applicants respectfully assert that the rejection of claim 41 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the Yano, whether taken singly or combined, teach or suggest each feature of independent claim 41.

**CONCLUSION:**

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

STEIN, MCEWEN & BUI, LLP

Date: 11/28/06

By: Douglas X. Rodriguez  
Douglas X. Rodriguez  
Registration No. 47,269

1400 Eye St., N.W.  
Suite 300  
Washington, D.C. 20005  
Telephone: (202) 216-9505  
Facsimile: (202) 216-9510